

REMARKS

The Examiner is thanked for the thorough review and consideration of the present application. The final Office Action dated July 16, 2003 has been received and its contents carefully reviewed.

By this Response, Applicants file herewith clean copies of Figures 1-6, and amend claims 1, 14, 20, 27, 36, 38, 39, 48, 51 and 52. Claims 28, 37 and 50 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Claims 1-27, 29-36, 38-49 and 51-56 are pending in the application. No new matter has been added. Reconsideration and withdrawal of the objection and rejections based upon the above amendments and the following remarks are requested.

In the Office Action, the drawings filed on May 5, 2003 were indicated to be acceptable subject to correction of the informalities set forth on PTO-948. In particular, the PTO-948 objected to Figures 1-6 because the "Lines, numbers, & letters are not uniformly thick and well defined, clean, durable, and black (poor line quality). Applicants respectfully file herewith clean copies of Figures 1-6. Accordingly, the objection is overcome.

In the Office Action, claims 1-7, 13-17, 19 and 20 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,404,473, issued to Kaneko, et al. ("Kaneko"). Applicants traverse the rejection below because Kaneko fails to teach or suggest each of the features recited in the claims of the present application.

Kaneko discloses "a liquid crystal display device which exhibits an improved production liquid crystal display device of the thin film transistor (TFT) type" (col. 1, lines 9-14).

Applicants submit, however, that the Office Action incorrectly equates the pixel electrode 5 of Kaneko to the transparent electrode and film recited in the claims of the present application. In particular, the Office Action states with regard to claims 1, 14 and 20 that Kaneko teaches "a first electrode (2) and a second electrode (4) on the first substrate". Applicants respectfully note element 2 of Kaneko is a gate electrode, and element 4 is a source electrode. Therefore, in keeping with the rationale set forth in the Office Action for alleging anticipation for claim 1, the pixel electrode 5 of Kaneko would, at a minimum, need to asymmetrically overlap the gate electrode 2 and connect to a common line in order to anticipate claim 1 of the present application. Instead, "the pixel electrode 5 is partially extended over another adjoining gate electrode 2' which is different from the gate electrode 2 for driving the thin film transistor TFT" (col. 12, lines 44-47), and the pixel electrode is connected to the source electrode 4 via contact hole 8A (see, FIG. 2). As such, the reasoning set forth in the Office Action fails and Kaneko does not anticipate independent claim 1. Because Kaneko fails to teach or suggest an in-plane switching mode liquid crystal display (LCD), having among other features, "a common line in parallel to the gate lines and connected to the first electrode" and "a transparent electrode asymmetrically overlapping the first electrode", as recited in independent claim 1, independent claim 1 and its rejected, dependent claims 2-7 and 13 are allowable over Kaneko.

Applicants further submit Kaneko fails to teach or suggest an in-plane switching mode liquid crystal display (LCD) having, among other features, "a plurality of first electrodes including an outermost first electrode on the first substrate", "a common line in parallel to the gate lines and connected to the plurality of first electrodes" and "a gate insulating film, a wherein the transparent film at least partially covers the outermost electrode", as recited in

independent claim 14. Kaneko discloses an insulating film 6 and a passivation film 8 that cover the gate electrode 2, drain electrode 3 and source electrode 4. However, Kaneko fails to teach or suggest the gate insulating film, protection film and a transparent film sequentially stacked on the outermost first electrode, as recited in independent claim 14. Because Kaneko fails to teach or suggest each of the features recited in claim 14, claim 14 and its rejected, dependent claim 15-17 and 19 are not anticipated by Kaneko.

With respect to rejected, independent claim 20, Kaneko fails to teach or suggest an in-plane switching mode liquid crystal display device having, among other features, "a second electrode on the gate insulating film, the second electrode forming an in-plane electric field together with the first electrode; a protection film on the first electrode and the second electrode; an asymmetric transparent electrode on the protection film and overlapping the first electrode" (see, claim 20). Although Kaneko discloses, at column 16, lines 37-40, that his invention can be "applied to the so-called traverse field type liquid crystal display device in which the common electrode is also formed on the side of the active matrix substrate", no further discussion is provided on the in-plane switching mode. Additionally, figures 1-12 of Kaneko do not depict an in-plane switching mode liquid crystal display. Because Kaneko fails to teach or suggest an in-plane switching mode liquid crystal display having the structure and features recited in independent claim 20, claim 20 is not anticipated by Kaneko.

Reconsideration and withdrawal of the rejection of claims 1-7, 13-17, 19 and 20 under 35 U.S.C. § 102(e) are respectfully requested.

unpatentable over Kaneko in view of U.S. Patent No. 5,907,379, issued to Kim et al. ("Kim").

Based upon the teachings of Kim, the Office Action alleges that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specific configuration as disclosed by Kim to the device disclosed by Kaneko to enhance the aperture ratio of the IPS LCD and to reduce defects." Applicants traverse the rejection because neither Kaneko nor Kim, analyzed alone or in combination, teach or suggest the combined features recited in independent claims 1, 14 and 20, from which rejected claims 8-12, 18 and 21-26 depend, respectively.

Kim discloses an in-plane switching LCD "to prevent the liquid crystal direction from being disturbed due to the grounded black matrix" (col. 2, lines 56-58). The Office Action further states that Kim discloses an "in-plane switching mode LCD, discloses a black matrix pattern (3) made of Chromium that also serves as a shielding electrode and the transparent electrode (402) includes ITO and the distortion of the electric fields." However, Applicants note Kim fails to teach or suggest at least: "a transparent electrode asymmetrically overlapping the first electrode", as recited in independent claim 1, "a gate insulating film, a protection film, and a transparent film sequentially stacked on the outermost electrode, wherein the transparent film at least partially covers the outermost first electrode", as recited in independent claim 14, and "an asymmetric transparent electrode on the protection film and overlapping the first electrode", as recited in independent claim 20. As such, Kim fails to remedy the deficient teachings of Kaneko such that modification of the device of Kaneko by the teachings of Kim would provide an in-plane switching mode LCD having the combined features recited in independent claims 1, 14 and 20, discussed above with respect to the § 102(e) rejection. By virtue of their dependence allowable features recited in independent claims 1, 14 and 20, respectively, and are therefore

patentable over any combination of Kaneko and Kim. Reconsideration and withdrawal of the rejection are requested.

In the Office Action, claims 27-56 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaneko and Kim, and further in view of U.S. Patent No. 6,466,289, issued to Lee et al. ("Lee"). Applicants traverse the rejection because neither Kaneko, Kim nor Lee, analyzed alone or in any combination, teach or suggest the combined features recited in the claims of the present application.

The Office Action concedes that Kaneko and Kim fail to disclose "placement of common electrodes and its relationship to either the transparent electrode or the field distorting electrode." To compensate for the deficient teachings of Kaneko and Kim, the Office Action relies upon the teachings of Lee. Based upon the teachings of Lee, the Office Action states that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specification configuration as disclosed by Lee to the device disclosed by Kaneko and Kim to reduce light leakage in an LCD, to prevent shorts between data line and the common electrode and to increase the aperture ratio." Applicants disagree.

Lee merely discloses a liquid crystal display in which "a second data pattern 80 and 83, which is connected to the first data pattern 60 and 63 through the contact holes 71 and 73 respectively, is formed on the passivation layer" (col. 4, lines 5-7), and "the second data line 80 and the two common electrodes 12 perform the same function as a black matrix, blocking the light leakage at portions near the first and the second data lines 60 and 80" (col. 4, lines 13-15).

Applicants note Lee fails to teach or suggest the combined features recited in the claims in respect to amended independent claims 27 and 36. In particular, Lee fails to teach or suggest

“an in-plane switching mode liquid crystal display device having, among other features, a transparent electrode over a region of the first substrate, the region including at least a portion of the common electrode, wherein the transparent electrode has a first part at a first height above the first substrate and a second part at a second height above the first substrate” as recited in claim 27. Thus, when Lee is combined with Kaneko and Kim, as suggested in the Office Action, the combination of references fails to provide an in-plane switching liquid crystal display (LCD) having all the combined features recited in independent claim 27 and its dependent claims 29-35. Accordingly, withdrawal of the rejection is requested.

Further, Lee fails to teach or suggest an in-plane switching liquid crystal display (LCD) device having, among other features, “a field distorting electrode on the protection film overlapping at least a portion of the common electrode, the field distorting electrode preventing vertical crosstalk caused by the data line and the data electrode... wherein the field distorting electrode includes first and second portions”, as recited in independent claim 36. Because Lee fails to teach or suggest at least this feature of claim 36, Lee fails to remedy the deficient teachings of Kaneko and Kim. As a result, neither Kaneko, Kim nor Lee, analyzed alone or in any combination, teach or suggest the combined features recited in claim 36 and its dependent claims 38-47. Withdrawal of the rejection of claim 36 and 38-47 is requested.

With regard to claims 48-56, the Office Action states that “it is obvious to one having ordinary skill in the art at the time the invention was made to adapt the method of fabricating this device using the teachings of Kaneko, Kim and Lee such that a device is made practicable and to

and to increase the aperture ratio.” Applicants respectfully disagree because no combination of

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Kaneko, Kim and Lee teaches or suggests the combined features recited in the claims of the present application. In particular, Kaneko, Kim and Lee fail to teach or suggest a method of manufacturing an in-plane switching liquid crystal display (LCD) device including, among other features, "forming a field distorting electrode on the protection film overlapping at least a portion of the common electrode, the field distorting electrode preventing vertical crosstalk caused by the data line and the data electrode... wherein the field distorting electrode includes first and second portions", as recited in independent claim 48 of the present application.

Because Kaneko, Kim and Lee fail to teach or suggest the combined features recited in claim 48, claim 48 and its dependent claims 49 and 51-56 are patentable over any combination of Kaneko, Kim and Lee. Reconsideration and withdrawal of the rejection are requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejections of the claims and to pass this application to issue. If the Examiner deems that a telephone conversation would further the prosecution of this application, the Examiner is invited to call the undersigned at (202) 496-7500.

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If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed

Dated: October 2, 2003

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